



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,154	07/24/2003	Nicolay Y. Kovarsky	AMAT/7624/CMP/ECP/RKK	2515

44257 7590 07/22/2005

MOSER, PATTERSON & SHERIDAN, LLP
APPLIED MATERIALS, INC.
3040 POST OAK BOULEVARD, SUITE 1500
HOUSTON, TX 77056

EXAMINER

BIRENBAUM, NIRA S

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,154

Applicant(s)

KOVARSKY ET AL.

Examiner

Nira S. Birenbaum, Ph.D.

Art Unit

1742

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6-28-2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 9-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-21 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12-04-2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 1-8, drawn to an apparatus, classified in class 204, subclass 233.
- II. Claims 9-21, drawn to a method, classified in class 205, subclass 98.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another process, such as an electrochemical etching process.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with B. Todd Patterson on July 6, 2005 a provisional election was made with traverse to prosecute the invention of I, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

Art Unit: 1742

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi *et al.* (US 2001/0007304) in view of Ersham (US Patent No. 3,909,381).

Regarding claim 1, Izumi teaches an electrolysis cell **1** (*i.e.*, a fluid basin) comprising an anode chamber (**7**) and a cathode chamber (**8**). Izumi also teaches a tank (**2**) in fluid communication with the cell (**1**). The tank comprises a fluid inlet (**12**) and outlet (**23**) and an absorbent material positioned between the inlet and outlet (see Figure 1). The adsorbent material is configured to release ozone under certain conditions (paragraphs 75-95).

However, Izumi does not teach a tank for supplying solution to the electrolysis cell. Ersham teaches an electroplating cell comprising an anode chamber and a cathode chamber (see Figure 1). Each chamber is supplied by an electrolyte reservoir (**20** or **24**). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Izumi *et al.* by incorporating an electrolyte

Art Unit: 1742

reservoir as disclosed by Ehram, in order to supply the cell with fresh electrolyte as taught by Ehram (column 5, lines 4-25).

Regarding the limitation in claim 1 "to maintain the solution additive with a processing window during an electrochemical plating process;" this limitation is interpreted to describe the intended use of adsorbent material and does not add structure to the apparatus claim. Therefore, no patentable weight is given to this limitation. See MPEP 2111.02.

Regarding claim 2, Izumi teaches that the adsorbent material is composed of high-silica (a mineral) materials such as zeolites (paragraph 62).

Regarding claim 3, Izumi teaches that the anode chamber and cathode chamber are separated by an ion-exchange membrane 6 (paragraph 54).

Regarding claim 5, Izumi teaches that the adsorbent material is configured to desorb ozone under certain conditions and absorb ozone under others (see abstract).

Claims 4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Ersham as applied to claim 1 above, and further in view of Belongia *et al.* (US Patent No. 6,391,209).

Izumi and Ehram teach the features as previously described. However, regarding claims 4 and 6-7, these references do not teach that the fluid outlet of the fluid container (which holds the adsorbent material) should be in fluid communication with the cathode chamber of the electrolysis cell, or that the container should be positioned in the conduit between the fluid basin (electrolysis cell) and the fluid tank (reservoir), or that it should be positioned inside the fluid tank.

Belongia teaches a system for providing a purified electrolyte to an electrolysis cell (Figure 4). The system comprises an electrolyte reservoir (1), a plating cell (4), and a recycling system (11) for purifying the electrolyte. The recycling system comprises a device (31) which removes contaminants using absorbent mops and pads (column 8, lines 36-45). Regarding claim 4, the outlet of this device is in fluid communication with the plating cell (see Figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Izumi in view of Ehram by positioning the adsorbent material such that the fluid outlet of its container would be in fluid communication with the plating cell, as taught by Belongia, because Belongia teaches that this allows the electrolyte to be cleaned and recycled (column 1, lines 6-14).

Regarding claims 6 and 7, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Izumi in view of Ehram by placing the adsorbent-holding material either in the conduit between the electrolysis cell or in the reservoir, since it has been held that shifting the location of parts in an apparatus does not constitute a patentable change (*In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950)).

Regarding claim 8, Izumi in view Ehram does not teach a filter positioned between the adsorbent holding container and the fluid basin. However, Belongia teaches (see Figure 4) a filter (42) positioned between the adsorbent container 31 and the fluid basin (electrolysis cell 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Izumi in view of Ehram by

Art Unit: 1742

incorporating a filter between the absorbent material and the electrolysis cell as disclosed by Belongia, in order to remove suspended particles from the electrolyte as taught by Belongia (column 9, lines 14-19).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nira S. Birenbaum, Ph.D. whose telephone number is (571) 272-8516. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

nsb


ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700